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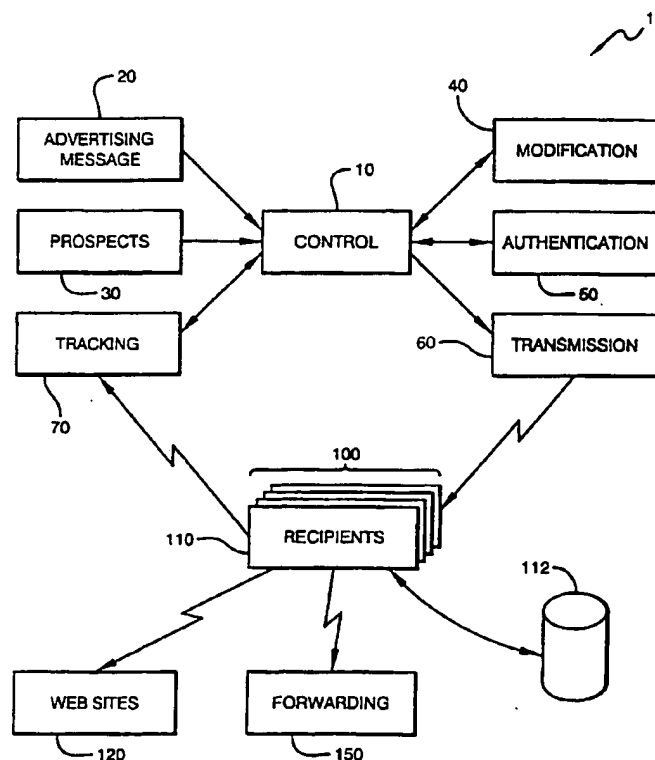
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[Continued on next page]

(54) Title: CLIENT-SIDE TRACKING OF ELECTRONIC COMMERCIALS



(57) Abstract: A recipient is sent an electronic commercial containing both a video component and tracking software, the commercial is stored locally to the recipient (100) as an executable file, and the tracking software (70) is used to transmit tracking information to a distant server (150). In preferred embodiments such commercials include video and audio tracks, as well as branding graphics that are displayed to the recipient while the video is playing. More preferred embodiments also include hyperlinks that are displayed to the recipient while the video is playing. At least some of the tracking information is preferably stored in the registry of the recipient computer. Optionally, an identification code or group codes may also be stored locally, again preferably in the recipient computer's registry. The commercials can be co-branded, and can be modified to accommodate characteristics of the recipients. Some or all of the commercials in a given campaign may be authenticated.



(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

— With amended claims.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— With international search report.

CLIENT-SIDE TRACKING OF ELECTRONIC COMMERCIALS

Field of The Invention

The field of the invention is electronic direct marketing.

5 **Background of The Invention**

Direct marketing can be viewed as involving six major steps: targeting an audience, creating a suitable message, delivering the message to a prospect, motivating the prospect to act upon the message, closing a transaction, and tracking the response. Over the years advances in computer and other technologies have altered the systems and methods by which each of these components are employed, and most recently the widespread implementation of public electronic networks such as the Internet have opened the field of electronic direct marketing.

With respect to tracking, it is presently known to track a potential customer's response to electronic direct marketing by monitoring a recipient's activities on a web site. Many web sites, for example, keep track of "hits" per page, time spent on each page or portion of a page, and recipient initiated transfers from one page to another. Of course, any site selling a product or service also generally keeps track of the customers, what they order, their demographics, and very often their hobbies, interests, and the like. One system that has taken web site tracking to a relatively sophisticated level is *yesmail.com*. The *yesmail.com* website employs its proprietary etrack™ system to monitor recipient defined, web site based "tracking points".

Valuable tracking information can, however, be lost by requiring a potential customer to hyperlink to a website, and then tracking his behavior from the web site. One potential problem is that the recipient may never get onto the website. In addition, web site tracking gives the advertiser information about the recipient's behavior with respect to the website, not with respect to the advertisement *per se*. Web site tracking doesn't, for example, tell the advertiser how long the prospect waited to open the commercial, or how long he viewed the commercial before jumping to the website, or whether he forwarded the commercial to others. Still further, reliance on web site tracking can cause individual advertisers to miss valuable information from cross-branded advertising. For example, if an advertisement has links to both McDonalds™ and Coca-Cola™, and the viewer transfers only to the

McDonald's site, Coca-Cola™ may gain no information at all about the transfer.

It is known for an electronic commercial (ecommercial) to directly track prospect responses, but previously, such tracking has been used in only a limited manner. This makes sense because ecommercials are regarded as a means of getting a recipient to a web site, not as an end in themselves. It also makes sense because much of the sophisticated tracking done on web sites is inapplicable to ecommercials. For example, tracking how long a prospect rests on each page is meaningless when the ecommercial only has one page. Thus, one software package known as "24/7", for example, tracks simplistic information such as the number of impressions, click-throughs to web sites, and so forth, directly in the commercial, but still relies on the sophistication of the web site at the other end of a hyperlink to record the bulk of the tracking information. Another software package known as "digitalimpcat.com" is somewhat more sophisticated, using code within the ecommercial itself to track when the message was opened, and where it was forwarded.

In addition, most ecommercials do not include any sort of unique identification, and consequently the only way that information can be correlated with a particular prospect is if the prospect hyperlinks to a site that collects identification information. One possible reason for this omission is that many individuals are quite resistant to allowing others to track their mouse clicks and hyperlinks. Another possible reason is that many network firewalls will only pass through e-mail messages that are authenticated. Such firewalls strongly discourage advertisers from adding identification codes to their commercials because every message having a unique identification code must be authenticated anew. Since authentication of a typical commercial containing a 30 second video streaming message requires more than a second of processing time to authenticate, a "mass mailing" to 100,000 prospects may require several days of processing.

There are a few systems that include unique identification in their ecommercials, but each of those systems has rejected the idea of authenticating video containing commercials. *Flonetwork.com*, for example, advertises that its commercials include unique identification codes. But the messages are rich-media only, not video, so that authenticating individual messages is not problematic. The *digitalimpcat.com* system also individually tags its messages, but limits the content to rich-media rather than full video.

Thus there is still a need for ecommercials to include sophisticated tracking, beyond

simplistic file opening. There is also a need to provide unique identification tags in commercials that include full video content.

Summary of the Invention

The present invention provides methods and systems in which a recipient is sent an electronic commercial containing both a video component and tracking software, the commercial is stored locally to the recipient as an executable file, and the tracking software is used to transmit tracking information to a distant server.

Tracking is preferably accomplished by capturing information regarding the recipient's interaction with the computer during execution of the file, and includes file opening time, video start and stop times, cursor positioning, and forwarding of the commercial to others. Such information may advantageously be stored in the registry of the recipient's computer. As used herein, the terms "recipient's computer" and "locally to the recipient" includes both the computer that operates the recipient's display, and also any LAN computer on which the recipient's files are stored. Preferred commercials may also contain hyperlinks to websites, where additional tracking of the recipient's activities may occur.

Several other aspects of preferred embodiments are directed to correlating tracking information with individual recipients, while still cost effectively transmitting authenticated commercials. One strategy involves storing an identification code on the recipient's computer, and updating a database at the transmitter's end to that effect. Subsequent transmissions to the same recipient need not include the identification code, and can be sent as an authenticated e-mail while still maintaining the ability to correlate tracking information with that particular recipient. In another strategy, commercials are transmitted with group identification codes, and the codes are recorded both in the prospects database and on recipients' computers. Storing of multiple group identification codes allows specific correlations to be made between prospects and recipients.

Various objects, features, aspects and advantages of the present invention will become more apparent from the following detailed description of preferred embodiments of the invention, along with the accompanying drawings in which like numerals represent like components.

Brief Description of The Drawings

Fig. 1 is a schematic of a system and method for tracking ecommercials.

Detailed Description

In Figure 1 an electronic mailing system 1 sends ecommercials to a plurality of prospects. The system 1 generally includes a control subsystem 10 that selects both advertising messages from an advertising messages database 20, and a set of targeted prospects from a prospects database 30. The control subsystem 10 also controls a modification subsystem 40 for modifying the commercial being sent, an authentication subsystem 50 for authenticating the transmissions, and a transmission subsystem 60 for transmitting the finished commercials to the prospects. Tracking is provided by tracking subsystem 70. Prospects that receive the commercial are referred to as recipients 110.

The term "advertisers" is used herein in the broadest possible sense, including any entity trying to impact the thinking or behavior of others. In many instances the desired impact will include motivating the recipient to purchase goods or services. In other instances the desired impact may be to cause the recipient to vote in a given manner in an election, or a poll. In still other instances the desired impact may be of a very general nature, perhaps increasing societal awareness of alcoholism.

The term "commercial" is used herein in a very broad sense to mean any message intending to motivate a recipient to take an action favorable to an advertiser. Commercials may be simple textual banner ads, but more preferably include rich-media graphics such as animation, a photograph or other image, or an audio tract. Still more preferred commercials include video and branding graphics. Especially preferred commercials will be those that communicate a value proposition communicated in 30 seconds or less. Currently the most preferred commercials include an audio tract, a video tract, branding graphics, and hyperlinks, all delivered in a single executable file. These and other embodiments are as described in concurrently filed application serial nos. ____ and ____, corresponding to attorney docket 604.07 and 604.08, respectively which are incorporated herein by reference. Still other preferred embodiments include "slide-show" commercials as described in concurrently filed application serial no. ____ corresponding to attorney docket 604.09, which is incorporated herein by reference.

The control subsystem 10 is a software application, generally comprising numerous programs, data structures, and so forth. The code is preferably written in a high level

language such as "C" or "C++", and includes other languages, routines, and libraries as appropriate.

The advertising messages database 20 stores advertising content used in preparing ecommercials. The content typically includes text, charts, graphics, video, and audio components, but may also include any other components that can be sent via electronic mail. Preferred advertising messages database 20 contain both finished commercials and portions of commercials that can be combined together to produce finished commercials. It is especially contemplated that audio and video tracks are included in at least some of the components and finished commercials. The advertising messages database 20 may be quite large. Finished commercials may run about 30 seconds of play time, and with current compression technologies, may require about 0.5 to 1.0 megabyte of storage space per commercial. Depending on how many commercials are being handled, and how many variations are being stored, the advertising messages database 20 may easily require 50 - 100 giga bytes of storage space.

The prospects database 30 is essentially an electronic address book, containing electronic mailing addresses for individuals, businesses, organizations, and so forth. Some or all of the prospects may have opted into the mailing list, or into another group that may or may not have any relationship to the advertising content. The prospects database 30 may be entirely proprietary to the owner of the system 1, or it may be obtained from an outside source. It is also contemplated that the prospects database 30 may comprise some or all of a co-sponsorship database as described in the concurrently filed application titled " Custodial Database for On-Line Marketing", corresponding to attorney docket 604.16, which is incorporated herein by reference.

The modification subsystem 40 optionally modifies the commercial or commercials being sent out, possibly under the direct control of an operator (not shown). Operator control allows commercials to be constructed as needed to satisfy the needs of various advertisers. It is contemplated, for example, that an operator may create a commercial in only a few minutes by selecting from stock audio tracks, backgrounds, video clips, and animation or other graphics that may be included in the advertising messages database 20. Such components may or may not be advertiser-specific.

In another aspect of the inventive subject matter the marketing characteristic or

characteristics used to produce the different commercials can be any combination of age, sex, and income, or any other marketing characteristics. Such characteristics advantageously include data obtained from responses to previous electronic commercials, and stored in a prospect database.

5 The multiple commercials can differ in only one component or in more than one component. Especially contemplated are multiple commercials that differ in several components, including at least three visual components and at least one audio component. Also especially contemplated are multiple commercials that differ from one another by the content of their video or audio clips, such as by the language employed in an audio clip.

10 In another aspect of the inventive subject matter the automatic assembling of the multiple commercials occurs in relatively close temporal proximity to their transmission. In especially preferred embodiments at least 10% of the commercials are transmitted to at least some of the targeted recipients within 24 hours, and more preferably within 2 hours, and still more preferably within 30 minutes of their production. Viewed from another perspective, it
15 is preferred that on average at least one commercial is assembled for every 500 of the targeted prospects, more preferably one commercial for every 50 prospects, and still more preferably one commercial for every 10 prospects.

 The term "advertisers" is used herein in the broadest possible sense, including any entity trying to impact the behavior of people. In many instances the desired impact will
20 include motivating the recipient to purchase goods or services. In other instances the desired impact may be to cause the recipient to vote in a given manner in an election, or a poll. In still other instances the desired impact may be of a very general nature, perhaps increasing societal awareness of alcoholism.

 As used herein, the term "commercial" means a file that is directly interpreted or
25 executed by the operating system of a computer as opposed to "played" by player software.

 Finished commercials may also be modified on an as needed basis ("on the fly") under automatic control of the control subsystem 30. One possible modification involves changing the language of the commercial from English to Spanish for Spanish speaking prospects. Other contemplated modifications may substitute different visual or audio
30 background tracks, or video clips depending on the age or sex of individual prospects. These and other modifications may be triggered by information contained in the prospects database

30.

A modification of particular interest is inclusion of an identification code in an ecommercial. Such codes serve to individually link preferences, interests or other data obtained from previous advertising campaign with particular records in the prospects database 20. If, for example, a recipient indicated in response to a previous campaign that he has no interest in certain types of clothing, that information could advantageously be stored in the prospects database 30, and employed in subsequent campaigns to avoid sending that person advertisements relating to such clothing.

10 Inclusion of identification codes can be accomplished in many different ways. One of the simplest methods is to insert identification codes as literals within the commercials. When a commercial is viewed, the accompanying software can record the recipient's activities as tracking data, and then send the tracking data back to the tracking system 70 along with the identification code. More preferably, the identification code can be stored locally to the recipient, and the occurrence of that storage can be recorded in the corresponding prospects database 30 record. When preparing subsequent commercials such records can be reviewed to discover that an identification number was already stored for a particular prospect, thus obviating the need to modify the new commercial to include a new identification code. Thus, where an advertiser requires individual recipient tracking, the commercials would need to be modified only for those prospects for which an identification code was not already stored at the recipient's end.

25 Another method of providing identification codes takes advantage of the fact that not all advertisers are interested in tracking individual responses. In such cases commercials can be sent out in groups, of perhaps a thousand at a time. Each commercial in a group would contain a group identification code, and that code would also be recorded in the individual records of the prospects database 30 for all prospects targeted in the group. Upon receipt and opening of the commercial, the group number would also be recorded locally to the recipients. The first time that tracking data is uploaded, from those recipients, the tracking system 70 would not be able to correlate individual tracking information with individual prospects. The next time a commercial is sent, however, the groups are chosen such that they include different sets of prospects from the first time around. Once again a group

identification is included in the commercial, transmitted to the prospects in the group, and recorded locally to the recipients. But this time when the tracking information is sent back to the tracking system 70, the recipient transmits two group identification numbers, which can likely be used to identify the specific corresponding record in the prospects database 30. If a
5 specific match cannot be made for a given prospect after the second commercial, possibly because multiple prospects were included in the same groups, a third or subsequent group commercial will provide sufficient information to identify the specific prospect.

Alternatively, other information besides a second group identification code (such as the initials of a user's name that might be provided by the user) could be used in conjunction with
10 the first group identification code to match up a particular recipient with a particular prospect. Ideally, the software would have also created a unique identification code that was stored along with the group numbers. Once a positive match between recipient and prospect is made, the group numbers can be deleted from the recipient's system, and the unique identification code can be used from then on.

15 Other possibilities are also contemplated. One possibility is that software downloaded with the commercial could ping a web site, and obtain the recipient's e-mail address by observing the return information from the ping. Another possibility is that users of future systems will include a public area on their computers that provides information about the user for use by the outside world. That information can be used to correlate a user with a given
20 record in the prospects database 30.

The authentication subsystem 50 optionally authenticates commercials being transmitted, as for example with a Verisign™ digital signature. This is important because many firewalls are configured to filter out messages that are not authenticated. Not all
25 commercials need to be authenticated, however, and a majority of such commercials may not be authenticated due to the substantial overhead costs required. The authentication decision can be made on a campaign basis, but is preferably made on an individual basis, possibly relying on data stored in the prospects database 30 or the tracking subsystem 40.

Decisions with respect to modification of a commercial to include an identification number, and authentication of the commercial in a transmission may be overlapping. Once
30 the tracking system has established that a recipient has stored the identification code, it is unnecessary to keep adding an identification code to the commercial, and re-authenticating the commercial. Transmissions to that recipient can be identical to those sent to other

recipients because the previously stored identification code can still be used to link the tracking data with the particular recipient.

The tracking subsystem 40 is also contemplated to be a software application comprising numerous programs, data structures, and so forth. As with the control subsystem 10, the code is preferably written in a high level language such as "C" or "C++", and also includes other languages, routines, and libraries as appropriate. The tracking subsystem 40, however, interacts with the recipient's computer to upload data relating to the recipient's responses to one or more commercials (i.e., the tracking information) from the recipient's computer to a distant server, i.e., a computer that is not local to the recipient, and that receives the tracking information. The tracking subsystem 40 may or may not reside on the distant server.

The tracking information can be as simplistic as whether or not the e-mail containing the commercial was ever received by the recipient, and if so when it was opened. More sophisticated tracking data may include file opening time, video start and stop times, cursor positioning, and forwarding of the commercial to others 150. Such information may advantageously be stored in the "cookies" section, or preferably in the registry of the recipient's computer 112. The recipient 110 may also use the commercial to click-through to one or more web sites 120 advertised on the commercial, and such click-throughs are also preferably tracked. It is especially contemplated that at least one of the web sites accessed by click-through, tracks at least some recipient activities, and even more preferably also contains a video component and an audio component that may or may not be the same as that included in the commercial.

The transmission subsystem 70 is basically a web server, the software and hardware of which are now commodity items. There are, however, several preferred methods and systems that are thought to accommodate the high volume of relatively large outbound transmissions involved in sending full audio-video ecommercials. Such methods and systems are described in the concurrently filed applications titled "Load Balancing Via Message Source Selection", "Message Content Based Routing", "Dynamic Routing via Shortest Delivery Time", and "Historical Delivery Time Based Routing Tables" corresponding to attorney dockets 604.12, 604.18, 604.19, and 604.20, respectively, each of which is incorporated herein by reference.

Each commercial is preferably transmitted to the prospects as an executable file, which is defined herein to mean a file that is directly interpreted or executed by the operating system of a computer as opposed to being "played" by player software. Although it is contemplated that commercials, and perhaps the tracking or playing software, can be transmitted as multiple files, it is preferred to transmit the entire commercial and all software needed to track or play the commercial as a single file. It is also contemplated that some or all of the commercial or supporting software can be downloaded separately from the transmission that includes the commercial. For example, it is contemplated that a fully functioning, multi-page commercial can be transmitted in an e-mail message. When the recipient opens the commercial, or perhaps reaches a given point in the presentation, his system contacts a distant server to download additional pages. Multi-page commercials of this type are disclosed in the concurrently filed application titled " Multi-Page Executable Commercials" corresponding to attorney docket 604.09, which is incorporated herein by reference.

Considered as a whole, the electronic mailing system 1 widely disseminates commercials in executable file format, such that the commercials are stored locally to the recipient. In preferred embodiments such commercials include video and audio tracks, as well as branding graphics that are displayed to the recipient while the video is playing. More preferred embodiments also include hyperlinks that are displayed to the recipient while the video is playing. The commercials may also advantageously contain software code that tracks the recipient's response to the commercial, with the tracking information being stored locally to the recipient, and then delay transmitted to a distant server.

At least some of the tracking information is preferably stored in the recipient computer's registry. An identification code and optionally group codes may also be stored locally, again preferably in the recipient computer's registry. System 1 may be used to bring together multiple advertising messages in creating the commercials, and possibly in modifying them. System 1 may also authenticate some or all of the commercials being sent out for a given campaign.

Thus, specific methods and systems of tracking commercials used in electronic direct marketing have been disclosed. It should be apparent to those skilled in the art, however, that many more modifications besides those already described are possible without departing from the inventive concepts herein. The inventive subject matter, therefore, is not to be

- restricted except in the spirit of the appended claims. Moreover, in interpreting both the specification and the claims, all terms should be interpreted in the broadest possible manner consistent with the context. In particular, the terms “comprises” and “comprising” should be interpreted as referring to elements, components, or steps in a non-exclusive manner,
- 5 indicating that the referenced elements, components, or steps may be present, or utilized, or combined with other elements, components, or steps that are not expressly referenced.

CLAIMS

What is claimed is:

1. A method of tracking a recipient's response to a commercial comprising:
including an audio or video component, and tracking software in the commercial;
storing the commercial locally to the recipient as an executable file; and
using the tracking software to obtain tracking information regarding a response of the
recipient to the commercial; and
transmitting the tracking information to a distant server.
2. The method of claim 1 wherein the commercial also contains a hyperlink to a website
that tracks at least some recipient activities.
3. The method of claim 1 wherein the commercial also contains a hyperlink to a website
that plays the video component.
4. The method of claim 1 wherein the tracking information includes video start and stop
times.
5. The method of claim 1 wherein the tracking information includes cursor positioning.
6. The method of claim 1 wherein the tracking information includes an address to which
the commercial is forwarded by the recipient.
7. The method of claim 1 further comprising the step of storing at least some of the
tracking information in a registry local to the recipient.
8. The method of claim 1 further comprising the step of storing a recipient identification
code in a registry local to the recipient.
9. The method of claim 1 wherein the step of storing the commercial as an executable
file includes storing the entire commercial as a single file.
10. The method of claim 1 further comprising the steps of attaching a recipient
identification code to the commercial, authenticating the commercial with the
identification code prior to transmission to the recipient, and storing the recipient
identification code locally to the recipient.

11. The method of claim 1 further comprising the step of determining that the recipient has a locally stored recipient identification code from a previous commercial, and including the locally stored identification code in a transmission when transmitting the tracking information to the distant server.
12. The method of claim 1 further comprising the steps of:
providing a prospects database;
including a group identification code in the commercial; and
using the group identification code along with other information to match up the recipient with a prospect in the prospects database.

AMENDED CLAIMS

[received by the International Bureau on 05 April 2000 (05.04.00)
original claims 1-12 replaced by new claims 1-13 (2 pages)]

1. A method of tracking a recipient's response to a commercial comprising:
including an audio or video component, and tracking software in the commercial;
storing the commercial locally to the recipient as an executable file; and
using the tracking software to obtain tracking information regarding a response of
the recipient to the commercial; and
transmitting the tracking information to a distant server.
2. The method of claim 1 wherein the commercial also contains a hyperlink to a
website that tracks at least some recipient activities.
3. The method of claim 1 wherein the commercial also contains a hyperlink to a
website that plays the video component.
4. The method of claim 1 wherein the tracking information includes video start and
stop times.
5. The method of claim 1 wherein the tracking information includes cursor
positioning.
6. The method of claim 1 wherein the tracking information includes an address to
which the commercial is forwarded by the recipient.
7. The method of claim 1 further comprising the step of storing at least some of the
tracking information in a registry local to the recipient.
8. The method of claim 1 further comprising the step of storing a recipient
identification code in a registry local to the recipient.
9. The method of claim 1 wherein the step of storing the commercial as an executable
file includes storing the entire commercial as a single file.

10. The method of claim 1 further comprising the steps of attaching a recipient identification code to the commercial, authenticating the commercial with the identification code prior to transmission to the recipient, and storing the recipient identification code locally to the recipient.
11. The method of claim 1 further comprising the step of determining that the recipient has a locally stored recipient identification code from a previous commercial, and including the locally stored identification code in a transmission when transmitting the tracking information to the distant server.
12. The method of claim 1 further comprising the steps of:
providing a prospects database;
including a group identification code in the commercial; and
using the group identification code along with other information to match up the recipient with a prospect in the prospects database.
13. The method of claim 1 wherein the recipient has a browser, and the executable file runs independently of the browser.

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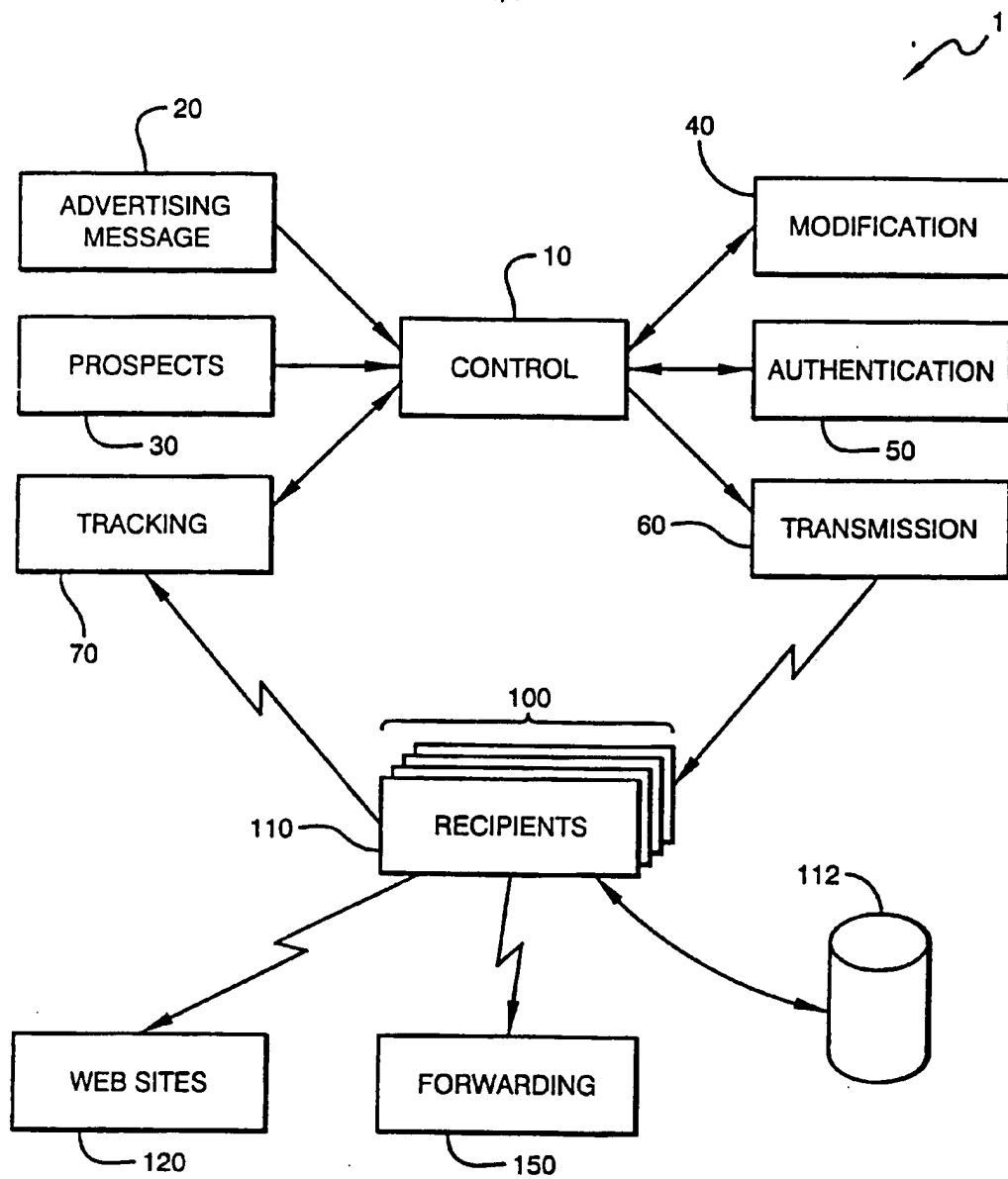


FIG. 1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/29639

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : G06F 17/30, 13/00, 15/00
US CL : 707/501; 705/14, 26; 709/223, 224

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 707/501; 705/14, 26; 709/223, 224

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WEST USPAT database

search terms: commercial, advertisement, internet, WWW, web, tracking

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,918,014 A (ROBINSON) 29 June 1999, col.2, line 1-col.3, line 45.	1-12N
X	US 5,796,952 A (DAVIS et al) 18 August, 1998, col.3, line 15-col.5, line 55.	1-12
X	US 5,913,212 A (SUTCLIFFE et al) 15 June 1999, col.2, line 15-col.4, line 66.	1-12
X, E	US 6,018,619 A (ALLARD et al) 25 January 2000, Fig.2, col.5, line 15-col.8, line 7.	1-12
A, P	US 5,987,440 A (O'NEAL et al) 16 November 1999.	1-12
A	US 5,819,285 A (DAMICO et al) 06 October 1998.	1-12

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
B earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means	
P document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

21 FEBRUARY 2000

Date of mailing of the international search report

14 MAR 2000

Name and mailing address of the ISA/US
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/29639

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, P	US 5,991,735 A (GERACE) 23 November 1999.	1-12
A	US 5,838,790 A (MCAULIFFE et al) 17 November 1998.	1-12
A	US 5,913,040 A (RAKAVY et al) 15 June 1999.	1-12
A	US 5,935,207 A (LOGUE et al) 10 August 1999.	1-12
A	US 5,717,860 A (GRABER et al) 10 February 1998.	1-12